

Water Saving Tips for Food Processing Facilities

GENERAL SUGGESTIONS

- Appoint a water conservation coordinator with the responsibility and authority for the water conservation program.
- Make the plant manager and other employees aware of the water conservation coordinator's function.
- Increase employee awareness of water conservation:
 - Explain the importance of individual actions to the success of the program.
 - Seek employee ideas for water conservation.
 - Read water meter daily to monitor and report the success of your water conservation efforts.

SURVEY THE PLANT

A plant survey helps to establish facility water savings potential by identifying areas where water is wasted or where water could be reused.

- Identify the major water lines. Determine the quality, quantity, and temperature of water carried by each.
- Identify all points where water is used, including hose connections. Determine the quantity of water used at each point.
- Determine the capacity of each water-containing unit and frequency of emptying.
- Determine the capacity of each continuous discharge not yet being reused.
- Determine flow rates in floor gutters and whether the flows are adequate to prevent solids accumulation.

EVALUATE SURVEY

- Review the information developed during the survey to identify the major water-using operations and review the water re-use practices currently employed.
- Develop plans to improve re-use:
 - Evaluate the feasibility of installing cooling towers.
 - Study the potential for screening and disinfecting reclaimed water to increase the number of times it can be re-used.

MAXIMIZE WATER-USE EFFICIENCY

- Install high-pressure low-volume nozzles on spray washers.
- Use fogging nozzles to cool product.
- Install in-line strainers on all spray headers; inspect nozzles regularly for clogging.
- Adjust pump cooling and flushing water to the minimum required.

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MAXIMIZE WATER-USE EFFICIENCY

- Use conveying systems that use water efficiently.
 - Handle waste materials in a dry state when possible.
 - Use conveyor belts for product transport; preference should be given to "rabbit-ear" or "V" shaped roller supports which are much easier to clean.
 - Use pneumatic conveying systems wherever possible.
 - Use flumes with parabolic cross sections rather than flat-bottom troughs.
- Establish optimum depth of product on conveyors to maximize wash water efficiency.
- Replace water-intensive units with alternatives: Rubber-disk units for raw product cleaning and peeling, Steam for water blanchers, or Evaporative coolers for hydrocooling systems.
- Determine whether discharges from any operation can be substituted for fresh water supplied to another operation.
 - Divide the spray wash units into two or more sections and establish a counter flow re-use system.
 - Use reclaimed water for flushing floor gutters.
 - Replace high-volume hoses with high pressure, low-volume cleaning systems.
 - As equipment wears out, replace with water-saving models.

AVOID WASTE

- Equip all hoses with spring loaded shutoff nozzles. Be sure these nozzles are not removed.
- Instruct employees to use hoses sparingly and only when necessary.
 - Adjust flows from recirculation systems (washers, flumes) by controlling the rate of makeup water:
 - Install float-controlled valve on the makeup line.
 - Close filling line during operation.
 - Provide surge tanks for each system to avoid overflow.
- Turn off all flows during shutdowns (unless flows are essential for clean-up). Use solenoid valves to stop the flow of water when production stops. The valves could be activated by tying them to drive motor controls.
- Adjust flows in sprays and other lines to meet the minimum requirements.

EVALUATE CLEAN-UP PROCEDURES

- Sweep and shovel solid materials from the floor; do not use hoses:
 - Provide an adequate number of receptacles for collecting solids.
 - Empty the receptacles frequently to prevent odor and insect problems.

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EVALUATE CLEAN-UP PROCEDURES

- Inventory all cleaning equipment (such as hoses) provided in the plant:
 - Determine the number and types of units provided.
 - Evaluate their frequency of operation; and
 - Use more water-efficient equipment where possible.
- Inventory all cleaning chemicals used in the facility to determine:
 - Are they are being used correctly?
 - Are they water use efficient?
 - Control belt sprays with a timer to allow for the intermittent application for chlorinated water.

EXTERIOR AREAS

- Don't use water to clean sidewalks, driveways, loading docks, and parking lots.
- Consider using mobile sweepers and vacuums.
- Wash autos, buses, and trucks less often.
- Avoid plant fertilizing and pruning that would stimulate excessive growth.
- Do not water landscape every day; only water when needed. If water restrictions are in effect, adapt your watering schedule accordingly.
- Remove weeds and unhealthy plants so remaining plants benefit from the water saved.
- In many cases, older, established plants require only infrequent irrigation. Look for indications of water need, such as wilt, change of color, or dry soils.
- Limit landscaping additions and alterations. In the future, design landscapes requiring less water.
- Install soil moisture overrides or timers on sprinkler systems.
- Time watering, when possible, to occur in the early morning or evening when evaporation is lowest.
- Make sure irrigation equipment applies water uniformly.
- Mulch around plants to reduce evaporation and discourage weeds.
- Remove thatch and aerate turf to encourage the movement of water to the root zone.
- Begin a flexible watering schedule, watering only when needed, and not on windy or rainy days.
- Avoid runoff and make sure sprinklers cover just the lawn or garden, not sidewalks, driveways, or gutters.

(SOURCE: Maryland Department of the Environment)